REMARKS:

1) In view of the accompanying Request for Continued Examination (RCE), the final status of the Office Action of March 2, 2009 shall be withdrawn, and the examination shall be continued on the basis of the present amended claims and remarks.

2) The claims have been amended as follows.

Independent claims 55 and 82 have been amended to incorporate features from prior claims 57 and 58, as well as additional features disclosed in original drawing Figs. 2 and 3 and the written description at page 3 line 23 to page 5 line 19. These features will be discussed below especially in comparison to the prior art. Because these features are originally disclosed in the application as cited above, the amendments do not introduce any new matter.

Claims 57 and 58 have been canceled.

Claim 75 has been amended for clarification also in view of the amendment of the independent claim 55.

New claims 83 and 84 have been added to recite additional features evident from original drawing Figs. 2 and 3, as further understood from the written description at page 4 line 8 to page 5 line 19. Thus, new claims 83 and 84 do not introduce any new matter.

Entry and consideration of the claim amendments and the new claims are respectfully requested.

3) After the present amendments, claims 55, 56, 59 to 65, 67 to 72 and 75 to 84 read on the elected Species I and are elected for further examination, while claims 66, 73 and 74 read on non-elected Species II and remain withdrawn as non-elected. However, the non-elected claims 66, 73 and 74 depend from generic independent claim 55, so that these dependent claims should be rejoined, considered and allowed if independent claim 55 is ultimately found allowable.

4) Referring to section 2 on pages 2 to 3 of the Office Action, the rejection of claims 55 to 57, 59 to 65, 67 to 72 and 75 to 81 as anticipated by US Patent 6,644,599 (Perez) has been obviated by the present amendment. Namely, currently amended independent claim 55 now incorporates subject matter from prior claim 58, which had not been rejected as anticipated. Therefore, the anticipation rejection does not apply against currently amended independent claim 55 or any of its dependent claims. The Perez reference will be discussed in comparison to the present claims below, in connection with the obviousness rejection. For these reasons, the Examiner is respectfully requested to withdraw the rejection of claims 55 to 57, 59 to 65, 67 to 72 and 75 to 81 as anticipated by Perez.

5) Referring to section 4 on pages 3 and 4 of the Office Action, the rejection of claims 55, 58 and 82 as obvious over Perez in view of US Patent 5,350,135 (Renzelmann et al.) is respectfully traversed. This rejection will be discussed in comparison to currently amended independent claims 55 and 82, which incorporate

features from prior claim 58 (as well as features from prior claim 57, from the drawing Figures 2 and 3, and from the written description at page 3 line 23 to page 5 line 19).

6) The current amendments of claim 55 and claim 82 emphasize certain distinguishing features of the invention in comparison to the prior art. These features can be understood, by way of example, with reference to Figs. 1, 2 and 3 of the present drawings. According to currently amended claim 55, for example, the wing includes a wing tip region (e.g. 14) connected to a main wing body of the wing (e.g. 1) by a flexible region (e.g. 15). The wing tip region (14) is bounded by the wing outboard end edge and the wing trailing edge. The flexible region (15) extends from the leading edge region to the trailing edge region of the wing, and between the main wing body and the wing tip region. The flexible region (15) has a wing profile that is adjustable by changing a curvature or camber thereof about at least one curvature axis that extends essentially perpendicular to the leading edge region and obliquely non-parallel relative to the wing chord direction and the wing outboard end edge. Thus, the at least one curvature axis extends in a direction including both a first direction component in the wing chord direction (5) and a second direction component in the wingspan direction (10). This is achieved because the spars of the flexible region are arranged extending essentially perpendicularly to the leading edge region and angled obliquely non-parallel to the wing outboard end edge and the wing chord direction. These features of currently amended claim 55 can be seen in Figs. 2 and 3 of the

present drawings. Also see page 3 line 23 to page 5 line 19 of the specification. Claim 82 as amended defines similar features with somewhat different terminology.

7) The above features of current claims 55 and 82 especially define the arrangement, combination, and orientation, of the wing tip region (14) and the flexible region (15), relative to the leading edge region and the wing outboard end edge (and the wing chord direction), to achieve a directed "curling or curving" of the flexible region (15) so as to thereby deflect the wing tip region (14) out of the plane of the main wing body. It is significant that the curvature axis extends essentially perpendicular to the leading edge region and obliquely non-parallel relative to the wing chord direction (which corresponds to the direction of the wing outboard end edge). This also means that the spars of the flexible region extend essentially perpendicularly to the leading edge region and angled obliquely non-parallel to the wing outboard end edge and the wing chord direction. These features achieve special functionality of the wing tip region that can be deflected by curving the flexible region in the direction as claimed. Namely, the claimed wing construction can achieve an optimized load or lift distribution for trimming, and also can be used for roll control (see the specification at page 1 lines 16 to 24). The above combination of features is not disclosed and would not have been suggested by the prior art, and the new functionality of the claimed wing construction thus also could not have been achieved or expected according to the prior art.

8) US Patent 6,644,599 (Perez) discloses a wing with a flexible region or variable wing section that has an adjustable profile shape.

This flexible or variable wing section may be a leading edge region (11), or a trailing edge region (12), or additionally or alternatively, it may involve adjusting the curvature of the wing box (3) or the entire wing (1) according to Perez (col. 2 lines 62 to 67). Referring to this disclosure of the reference, the Examiner has asserted that "*the entire wing, including a region near the wing tip, can be constructed such that the wing is flexible ... and various regions in the wing, including the wing box 3 or even the entire wing 1 can be made flexible*". However, making the interior wing box 3 of the main wing body, or the entire wing 1 flexible, would not have suggested the inventive features. The interior wing box 3 is not bounded by any outer wing edges, and making the entire wing flexible would not involve a separate wing tip region. Namely, Perez does not disclose or suggest that there should be a wing tip region connected by a flexible region to the main wing body, wherein the wing tip region is bounded by the wing outboard end edge and the wing trailing edge, and the flexible region extends from the leading edge region to the trailing edge region between the main wing body and the wing tip region. These limits or boundaries of the wing tip region and of the flexible region are significant to the invention, and would not have been suggested by Perez's teaching to make the leading edge region or the trailing edge region or the wing box 3 or the entire wing 1 flexible. Due to the

different aerodynamic considerations and functions, teachings regarding a flexibly-connected trailing edge region or leading edge region do not apply to or suggest anything about a flexibly-connected wing tip region.

Furthermore, Perez does not disclose and would not have suggested that the flexible region is adapted to curve about at least one curve axis extending essentially perpendicular to the leading edge region and obliquely non-parallel relative to the wing chord direction, with the spars of the flexible region similarly extending essentially perpendicular to the leading edge region and angled obliquely non-parallel to the wing outboard end edge and the wing chord direction. To the contrary, in the arrangement according to Perez, the curve axis must be parallel to the wingspan direction. Namely, according to Perez the spars of the flexible region (either the leading edge region or the trailing edge region or the wing box) must be arranged parallel to the respective leading edge or trailing edge, so as to be torsionally stiff about the wingspan direction and permit the curve-inducing vertebra to rotate about the wingspan direction (col. 8 lines 63 to 67, and col. 9 lines 11 to 14). Regarding the teaching that the wing box (3) or the entire wing (1) can be made flexible, it is clearly apparent in Fig. 1 that the spars of those components (21, 22, 23, 24) extend longitudinally along the length of the wing generally in the span direction from the wing root to the wing tip, and are thus also not perpendicular to the leading edge. Therefore, the "curling" or curving axis of the flexible regions according to Perez is significantly

different from the curving or curling axis according to the invention of present claims 55 and 82.

9) The Examiner has acknowledged that Perez does not teach an arrangement "*to curl the wing tips such that the axis of curl is perpendicular to the leading edge region of the wing*" (page 3 of the Office Action). In this regard, the Examiner has additionally cited and applied US Patent 5,350,135 (Renzelmann et al.).

Renzelmann et al. disclose a wing with a folding wing tip portion (14) that is hinged or pivoted to the main wing body (4). The wing tip portion may be folded upwardly in order to shorten the remaining wingspan in order to reduce the space required by the aircraft when taxiing or being parked on the ground or on an aircraft carrier (col. 1 lines 22 to 27). In this regard, the hinge joint or pivot axis (24) that pivotably connects the wing tip portion (14) to the main wing body (4) extends parallel to the wing outboard end edge, i.e. parallel to the wing chord direction corresponding essentially to the forward flight direction (see Figs. 1, 2 and 3). The leading edge of the wing extends at an oblique backsweep angle.

Thus, Renzelmann et al. also do not disclose and would not have suggested providing a flexible region that is adapted to curve about at least one curve axis extending essentially perpendicular to the leading edge region and **obliquely non-parallel relative to the wing chord direction**, and thus purposely having a directional component in the wingspan

direction. Providing the curvature axis to extend obliquely non-parallel relative to the wing chord direction with a directional component extending in the wingspan direction, would not have served the purpose of Renzelmann et al., which is to reduce the wingspan of the aircraft for storage or ground operation purposes. In other words, a curving or folding axis that extends with a directional component thereof in the wingspan direction would be inefficient or non-functional for achieving the purpose of reducing the wingspan, because to the extent that the curving or pivoting axis would have a directional component thereof in the wingspan direction, this component could not contribute to the reduction of the wingspan. In fact, for example, in Figs. 2 and 3 of the present application, it can be seen that a "curling" of the flexible region 15 will not, or will not significantly, reduce the maximum wingspan at the leading edge of the wing.

Thus, even a combined consideration of the teachings of Renzelmann et al. together with those of Perez would not have suggested the present invention. Namely, neither Perez nor Renzelmann et al. suggest a flexible region that is flexible about at least one curvature axis extending essentially perpendicular to the leading edge region and obliquely non-parallel relative to the wing chord direction, furthermore with spars of the flexible region extending essentially perpendicular to the leading edge region and angled obliquely non-parallel relative to the wing outboard end edge and the wing chord direction. Instead, the pivot axis of Renzelmann et al.

extends non-perpendicular to the leading edge and parallel to the wing outboard end edge and wing chord direction, and the spars and curvature axes of Perez extend parallel to the leading edge or parallel to the trailing edge. Still further, neither Perez nor Renzelmann et al. provide the flexible region being located and arranged with respect to the wing outboard end edge, the leading edge region, the trailing edge region, the wing tip region, and the main wing body, as presently claimed.

10) Referring to the first new paragraph on page 5 of the Office Action, near the middle of page 5, the Examiner has stated "*It is the Examiner's position that Perez provides the suggestion, and the inherent similarities between a front edge, distal edge, and back edge of a wing indicate that an apparatus that flexes the back edge of a wing would predictably flex a distal edge of a wing*". That assertion is respectfully traversed. A person of ordinary skill in the art understands that the leading edge, the trailing edge, and the outboard end edge of a wing have significantly different functions, aerodynamic behaviors, and structural considerations. Thus, the teachings regarding movement or flexing of one of these edges do not suggest a predictable result for flexing a different one of these edges. The aerodynamic and functional differences substantially outweigh any structural similarities. For example, while ailerons are taught to be provided along a trailing edge, they are not suggested to be provided (and would not be functional for the intended purpose) on a leading edge or an outboard end edge of

a wing. Similarly, while Renzelmann et al. teach a foldable wing tip for reducing the wingspan during ground operations of the aircraft, such a foldable structure would not have been suggested to be provided (and would not have been functional for the intended purpose) on a leading edge or a trailing edge of a wing. Furthermore, while the Examiner has pointed out that Renzelmann et al. teach a motivation for constructing a wing with a folding wing tip, the currently amended claims clearly distinguish the structure, arrangement, interrelationship and orientation of the flexing structures of the invention relative to those of Renzelmann et al., and relative to a combined consideration of Perez and Renzelmann et al., as discussed above.

11) For the above reasons, the respective invention according to present independent claim 55 and according to present independent claim 82 would not have been obvious from a combined consideration of Perez and Renzelmann et al. The dependent claims are patentably distinguishable over the prior art already due to their dependence. Thus, the Examiner is respectfully requested to withdraw the rejection of claims 55, 58 and 82 as obvious over Perez in view of Renzelmann et al. Also for the above reasons, the rejected claims are not anticipated by the Perez reference itself. Therefore, the Examiner is also respectfully requested to withdraw the anticipation rejection.

12) Favorable reconsideration and allowance of the application, including all present claims 55, 56 and 59 to 84, are respectfully requested.

Respectfully submitted,

By Walter F. Fasse

Walter F. Fasse
Patent Attorney
Reg. No.: 36132
Tel. 207-862-4671
Fax. 207-862-4681
P.O. Box 726
Hampden, ME 04444-0726

WFF:ks/4876
Enclosures:
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Walter F. Fasse 9/2/09

Name: Walter F. Fasse - Date: September 2, 2009